

## Project Info



01 / 08 / 15



CC5™ Bulk Rolls



1600m<sup>2</sup>



Vertical layers



United Kingdom



Undisclosed



CC used as a temporary slope covering measure to provide protection to a 4m excavation at a manufacturing facility in the UK



Completed North section of lined excavation

In July 2015, Concrete Canvas® (CC) GCCM\* was used to provide a means of temporarily protecting the walls of a 4m deep excavation at a manufacturing plant in the UK. The geology of the area was such that although the excavation was structurally sound when turned to slurry in heavy rainfall. This presented a health and safety risk to those working within the confines of the excavation and potential programme disruption.

The excavation was required to allow the pouring of foundations for heavy machinery and would be exposed to the elements for a 2 month period. Trials had been conducted with plastic sheet and webbing, but this did not seal the rock face sufficiently and did not withstand high winds. Similarly, attempts to protect the surfaces with a free-poured lean mix cement proved difficult to control. The use of shotcrete was not an option given the cost, requirement for specialist contractors, restricted access and risk of rebound/spray to nearby sensitive machinery.

Following initial small scale trials, CC was installed to provide the temporary protection to the worst affected rock faces. The speed of install and low mass of material to recover after use, lend CC to temporary excavation works: providing a light weight but durable fibre-reinforced water proof concrete layer.

5mm Concrete Canvas (CC5™) was deployed via spreader beam in vertically draped layers. CC5™ was delivered in 200m<sup>2</sup> bulk rolls, requiring only 8 pallets to deliver, greatly reducing vehicle movement and handling onsite compared to a poured concrete solution.

\*Geosynthetic Cementitious Composite Mat







*Previous protection measure with plastic sheeting and webbing*



*Previous protection measure with poured lean mix concrete*



*Scaffolding supported by CC lined rock face*



*Poured concrete floor capture of CC ends*



*CC layers overlapped and screwed together*





*Completed CC lined north section of excavation*

CC layers were anchor trench and pinned at the crest of the excavation along the perimeter. Adjacent layers were overlapped by 100mm and fixed together using auto-fed 30mm screws at regular spacing. Additional fixings were installed at overhangs to reduce void space behind uneven sections and to secure the CC to the face. The toe end of the CC layers was captured with the poured concrete floor of the excavation for a neat and impermeable termination.

The draping characteristics of CC meant that no surface preparation was required, the pliable layers of material conformed easily to the uneven profile of the rock face. Another benefit of using CC, was that it provided a hard wearing surface onto which to support scaffolding sections within the excavation. In all, over 1600m<sup>2</sup> of CC5™ material was installed over a 4 day period, providing protection to the engineering teams working with the excavation, by mitigating water ingress, stabilising the excavation and sealing the rock face against loose fines, rock spalling and debris.